

66476/024

#5  
Pet. for Retro  
3/30/01

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: ) PATENT  
Jong Woon PARK et al. )  
Serial No. )  
Filed: Herewith )



Ex-Vessel Core Melt Retention Device  
Preventing Molten Core Concrete Interaction

\* \* \* \* \*

PETITION FOR RETROACTIVE LICENSE UNDER  
37 C.F.R. 5.25

December 22, 2000

Sirs:

Applicants hereby petition for license for foreign filing, attached hereto, to be granted retroactive under the provisions of 37 C.F.R. 5.25.

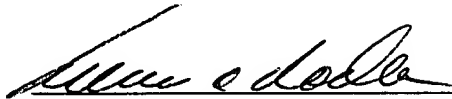
The attached application was filed with the Korean Patent Office on December 28, 1999, under application Serial No. 1999-63392.

A verified Declaration of Mr. T. G. Theofanous, the co-inventor who made his invention in the United States, is attached herewith in accordance with 37 C.F.R. 5.25(a) (3)(i)-(iii).

BEST AVAILABLE COPY

Please charge the petition fee under 37 C.F.R. 1.17(h) in the amount of \$130 to our Deposit Account No. 04-2223.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Lawrence R. Radanovic', is written over a horizontal line.

Lawrence R. Radanovic, Reg. No. 23,077

Attorney for Applicant

DYKEMA GOSSETT PLLC  
FRANKLIN SQUARE -THIRD FLOOR WEST 300  
1300 I Street, N. W.  
Washington, D.C. 20005

ID28676

parkjw@kepri.re.kr,3/1/99 44 PM -0700,Draft Report

1

To: parkjw@kepri.re.kr  
From: Eileen Horton <eileen@theo.ucsb.edu>  
Subject: Draft Report  
Cc:  
Bcc:

X-Attachments:  kepri.pdf

Dear Dr. Park:

Attached is a draft of my report, as promised. If you cannot read it, please let me know, and I will be able to fax it to you (please let me have your fax number).

I am excited about the prospects of commercializing this idea. It can work very well, even for existing reactors. I would recommend that KEPRI file for an international patent as soon as possible. If by chance KEPRI is not interested, I would hope you would let me know so that I can file for a patent myself.

I am looking forward to having KEPRI's comments on this draft, so I can finalize it. Especially, feel free to tell me of any areas where my reasoning is not clear enough or if you need further details.

Sincerely yours,

T.G. Theofanous, President  
Theofanous & Co., Inc.

RECEIVED  
MAY 19 2000  
11:13

#1

Jong Woon Park, 3/2/99 1 PM +0900, Re: Draft Report

1

X-Sender: parkjw@168.78.8.10  
 Mime-Version: 1.0  
 Date: Tue, 02 Mar 1999 15:21:34 +0900  
 To: "Professor Theofanous" <theo>  
 From: Jong Woon Park <parkjw@kepri.re.kr>  
 Subject: Re: Draft Report  
 Cc: eileen

Dear Professor Theofanous:

I received your report. It is good to read. Thank you for your elaboration.

We wish to file this idea for a patent. However, please give me 1 or 2 week to review and prepare questionnaires for full understanding, and to discuss with Dr. Oh. (Frankly, I have many questions.) I wish coming questions would not cause you a trouble.

My fax and phone numbers are changed to:  
 Fax: 82-42-865-5704  
 Phone: 82-42-865-5738

Sincerely,

Jong Woon Park  
 CARD/KEPRI

At 03:54 99-03-01 -0700, you wrote:

>Dear Dr. Park:

>

>Attached is a draft of my report, as promised. If you cannot read it,  
 >please let me know, and I will be able to fax it to you (please let me have  
 >your fax number).

>

>I am excited about the prospects of commercializing this idea. It can work  
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>

>I am looking forward to having KEPRI's comments on this draft, so I can  
 >finalize it. Especially, feel free to tell me of any areas where my reasoning  
 >is not clear enough or if you need further details.

>

>Sincerely yours,

>

>T.G. Theofanous, President  
 >Theofanous & Co., Inc.

>

>Attachment Converted: c:\eudora\attach\kepri.pdf

>

#2

Es note

03:54 PM 1:13

Dear Dr Park  
 I am delighted that you  
 enjoyed my report. I had  
 some tough time coming up  
 with an idea that would  
 appear to be neat, cheap,  
 and acceptable -  
 Also happy that you  
 agree with the patent idea  
 Looking forward to  
 your comments.  
 Since

Jong Woon Park, 7/13/99 5:52 PM +0900, A Question

Date: Tue, 13 Jul 1999 17:52:55 +0900  
 From: Jong Woon Park <parkjw@kepri.re.kr>  
 Organization: KEPRI  
 X-Accept-Language: en,ko,ja  
 MIME-Version: 1.0  
 To: theo@theo.ucsb.edu  
 Subject: A Question

Dear Professor Theofanous:

How have you been?

It is so bad that we cannot go further with EVC concept. However, we are interested in that design so much and I am waiting for an official final progress report.

Anyway, I wish to ask you a question if it does not cause you an inconvenience.

I am attaching a letter entitled "Lessons Learned from the ACRS Review of the AP600 Design" (from Mr. Dana A. Powers to Dr. William D. Travers at NRC).

In the section on "In-Vessel Retention of Core Debris" of the attached letter, it is said that "... More experiments and analyses are needed before in-vessel core debris retention can be credited as part of the licensing basis. At this time, we believe in-vessel core debris retention should only be considered as a severe accident management strategy"

I think that FSER of NRC to grant a Final Design Approval to AP600 design means IVR is credited as a Licensing Basis. In this regard, I wish to hear your opinion.

Looking forward to hearing from you soon.

Sincerely,

Jong Woon Park  
 CARD/KEPRI

March 22, 1999

Dr. William D. Travers  
 Executive Director for Operations  
 U.S. Nuclear Regulatory Commission  
 Washington, D.C. 20555-0001

Dear Dr. Travers:

SUBJECT: LESSONS LEARNED FROM THE ACRS REVIEW OF THE AP600 DESIGN

During the 460th meeting of the Advisory Committee on Reactor Safeguards, March 10-13, 1999, we completed deliberations regarding lessons learned from our review of the AP600 passive plant design. As noted in our July 23, 1998 report, issues on the safety aspects of the AP600 application were resolved to our satisfaction. In the course of our review, however, we identified some lessons learned that could affect reviews of future applications or that could be relevant to operating plants.

Printed for Gail <gail@theo.ucsb.edu>

Now regarding your question. Actually because of political reasons, it went on both sides of the river. Officially, they declared IVR was not accepted as licensing basis, but unofficially they have the decision on it. Actually, again for political reasons, they never gave IVR a full hearing.

Dear Dr. Park, note came on 1 way. Funny that your write up on the patent finishing the meeting the lawyers I understand you wanted to have it a July 17, so wanted you to have it a few days before. Please tell lawyers we need to have some generalities in description so we cover our claim well, and against any v mal changes by others. My final report will follow shortly. Is it true that you have not comments and suggestions? Otherwise it will be pretty much what you have already created for me. Love

1

Jong Woon Park, 2/17/00 18:23 PM +0900, Preparing a Patent for USA

1

From: "Jong Woon Park" <parkjws@kepri.re.kr>  
To: "eileen" <eileen@crss.ucsb.edu>  
Subject: Preparing a Patent for USA  
Date: Thu, 17 Feb 2000 18:23:59 +0900  
X-Priority: 3  
Status:

Dear Professor Theofanous:

How are you.  
Here is a good news.

#5

Our upper manager told me to expedite the patent application for EVR to USA.  
I will try to finish the process in March.  
I appreciate that you have waited so long.  
Until the document is submitted to US patent office, I think Korean patent application will protect the priority as our lawyer said.  
So I think you can process for the new research on EVR is USA.

In the near future, I wish to submit a plan for reeseearch project in relation with EVR idea. So if possible, please let me know in what specific area of EVR verification Korean organization can contribute.

Sincerely,

Jong Woon Park  
CARD/KEPRI

RECEIVED  
FEB 18 1999  
11:13

=?ks\_c\_5601-1987?B?udrBvr/u?=: 7/13/00 9:18 AM +0900, Re: US patent

From: =?ks\_c\_5601-1987?B?udrBvr/u?=: <parkjw@kepri.re.kr>  
To: "theo" <theo@crrs.ucsb.edu>  
Subject: Re: US patent  
Date: Thu, 13 Jul 2000 09:18:33 +0900  
X-Priority: 3  
Status:

Dear Professor Theofanous:

I understand the situation where you stand.

However, things are gone too far.

The patent for EVR with KEPRI guy's names are already issued to Korean patent office for US application. If you progress the patent in US also, it will damage ourselves since KEPRI is spending money and time for that.

Actually, I am not that much interested to be a primary inventor. It was only a administrative way. Since KEPCO is public company, near every contract is based on KEPCO's and Korean rule. The same is true for the intellectual property. KEPRI will always say EVR is the KEPCO's property based on the Contract.

I think the problem comes from the fact that you are progressing patent in USA. Even though it is delayed too much, I wish you could be patient until Korean patent office submit the EVR patent to US. We are at the front door.

Sincerely,

Jong Woon Park  
Center for Advanced Reactors Development  
Korea Electric Power Research Institute (KEPRI)  
103-16 Munji-Dong, Yusong-Gu  
305-380, Taejon, Korea

----- Original Message -----

From: theo  
To: parkjw@kepri.re.kr  
Sent: Thursday, July 13, 2000 6:44 AM  
Subject: US patent

Dear Dr. Park:

In my pursuit of our patent here with the lawyers, I have encountered a couple of serious problems that you need to bring immediately to the attention of your management.

1. Apparently there is a law here that dictates that all discoveries made on US soil should be first patented in the US patent office. This applies independently from who paid for or who owns the invention. I did not know of any such law, but I am surprised that KEPRI's lawyers did not know about this law. In any case, my lawyer here thinks we can recover, by making a special application that explains the situation and pleads ignorance.

2. There is another strict aspect of patent law here that requires that only the real inventors appear on a patent. This is so severe that if it is found to be not true, the whole patent can be lost. In our case, the problem is that on the Korean patent they have put your name and Ohts as inventors. Since you have not been involved in the investigation, this is very risky and unacceptable for the US patent, according to my lawyer. Again, I did not know that, and frankly I don't even care if your names are on, but I didn't know until I saw the Korean application that you sent me that your names were on it too. Hopefully, this is not of concern in Korea, so there is nothing required for recovery, if we have only my name on the US patent. The KEPRI investors can be safeguarded by a special contractual agreement that is very easy to do, according to my lawyer here.



=?ks\_c\_5601-1987?B?uDrBvr/u?=: 7/26/00 9:28 AM +0900, Re: Patent

From: "?ks\_c\_5601-1987?B?uDrBvr/u?" <>  
To: "theo" <theo@crss.ucsb.edu>  
Subject: Re: Patent  
Date: Wed, 26 Jul 2000 09:28:21 +0900  
X-Priority: 3  
Status:

Dear Professor Theofanous:

I am sorry that it's too late to respond.  
Please don't be unhappy. I would not quit communications.

The patent application for US is now at the Korean patent office.  
It will be submitted to US patent office in a moment. I have telephoned  
the lawyer to ask the exact time of submittal, but he is in vacation and  
will be back on Thursday.

I have talked to Korean lawyer about the patent problem. He said if  
we have a letter that you transfer your right for the EVR patent to KEPRI,  
there will be no legal problem in both US and Korea.

For the IVR, I understand what you want to say.  
I wish to state about situation of AP600 IVR in design point of view.  
For the large release frequency (level 2 PSA), the IVR is successful for  
only 65.7%. The reason is: in order for IVR to be successful, system  
depressurization and cavity flooding should be established.

Even though reactor vessel failure of AP600 would be physically  
unreasonable once depressurized and cavity flooded, the system  
failure (depressurization and cavity flooding) is not physically  
unreasonable.

That is the same situation for the KNGR. Difference is the probability of  
IVR once depressurized and flooded. Even though it is lower  
for the KNGR and may not be physically unreasonable, we have to  
think in a systems point of view. I think we don't have to pose  
too many resources to one severe accident strategy since there  
is no physically unreasonable system failure.

I am preparing calculations as you requested.

Sincerely,

Jong Woon Park  
Center for Advanced Reactors Development  
Korea Electric Power Research Institute (KEPRI)  
103-16 Munji-Dong, Yuseung-Gu  
305-380, Taejeon, Korea

----- Original Message -----

From: theo  
To: parkiw@kepri.re.kr  
Sent: Wednesday, July 26, 2000 3:15 AM  
Subject: Patent

Dear Dr. Park:

You have done this before, so I don't mind telling you that I do not appreciate your shutting  
off the communications, on the excuse that you are away, whenever you wish. I am very unhappy  
and I am going to take steps to make this known, unless I hear from you in two days from now  
something that makes sense.

It is normal that  
during such submittal  
the lawyers work with  
the inventor, to make  
the best possible  
representation. I need  
to talk to your  
management urgently.  
(in a)

Dear Dr. Park  
I am very unhappy  
because your lawyers do not  
know what they are doing.  
One needs much experience  
to prepare properly a patent.  
My lawyer here had to  
rewrite almost  
the whole thing.  
etc

=?ks\_c\_5601-1987?B?udrBvr/u?=: 7/31/00 6:30 PM +0900, Re: Patent

From: #7ks\_c\_5601-1987?B?udrBvr/u?=: <>  
To: "theo" <theo@crsa.ucsb.edu>  
Subject: Re: Patent  
Date: Mon, 31 Jul 2000 18:30:53 +0900  
X-Priority: 3  
Status:

Dear Professor Theofanous:

Waiting for your response to my previous e-mail.  
I am attaching the recently revised and corrected patent document  
on EVR received from our patent agency.

Looking forward to receiving your comments on that.

Sincerely,

Jong Woon Park  
Center for Advanced Reactors Development  
Korea Electric Power Research Institute (KEPRI)  
103-16 Munji-Dong, Yusong-Gu  
305-380, Taejeon, Korea

Attachment converted: Archive:X1602.doc (WDBN/MSWD) (000025P0)

5/11/1  
Also I have  
not contacted  
your management  
yet. I will do  
next week.  
✓  
Dear Dr Park what  
I don't know waiting for  
e-mail you are As far  
me to respond to. As far  
as I know I have responded  
to all previous e-mails.  
I didn't get a chance  
to read your e-mail for  
patent prepared because  
of travel. I will  
do so in  
do week or so  
January

## FAX COVER SHEET

**Korea Electric Power Research Institute**  
**Korea Electric Power Corporation**

Yusung-gu, Munji-dong  
103-16, Taejon, 305-380  
Korea

Fax: 82-42-865-5704

6/11

Date: August 29, 2000

No. of pages to follow: 4

TO: Professor Theofanous  
CRSS, UCSE  
Phone:  
Fax: 1-805-682-2033

FROM: Jong Woon Park  
KEPRI  
Phone: 82-42-865-5738  
Fax: 82-42-865-5704  
E-Mail: parkjw@kepri.re.kr

---

### MESSAGE

Dear Professor Theofanous:

Have you reviewed the patent document? Please let me know if it should be modified.

Our patent agency appointed US attorney for USA application of patent on EVR, and asked us to sign on the attached "Combined Declaration and Power of Attorney for Utility Patent Application".

Please sign inside the box titled "Inventors Signature" on the right side of your name in: page 2, and re-send it to me by air mail (we need original one).

Best Regards,

Jong Woon Park

---

Ramp@kepri.re.kr, 8/30/00 8:44 AM -0700, Patent

1

To: Ramp@kepri.re.kr  
From: theo <theo@theo.ucsb.edu>  
Subject: Patent  
Cc: ikyang@kepri.re.kr  
Bcc:  
X-Attachments:

11/11

Dear Mr. Choi,

As you may know, my work for KEPRI on KNGR debris coolability has led to a new and interesting design concept that I thought was patentable. Unfortunately, what should have been a very good experience for all of us is becoming increasingly more messy and time consuming. I am especially disturbed and disappointed by KEPRI's handling of this whole situation, at least as far as it is evidenced through my contact, Dr. Jong Woon Park. Further, we are running a serious risk of failing to capitalize on what I think is a breakthrough in reactor accident management, not only for advanced, but also for existing reactors.

Throughout this painful process, Dr. Park keeps telling me that he follows "orders" from superiors, so really my contention is not with him. In fact, neither is it with anybody else, but I thought you should know that the whole process, as being pursued by KEPRI, perhaps as a result of neglect, miscommunication, or whatever other reason, is not according to the high professional standards I am accustomed to.

Hopefully we can recover from it, but to do so will require an immediate mutual understanding, and a prompt change in how we go about it. Towards this end I have decided to write to you. This and to ask your opinion on how to accomplish this. My suggestion is that we begin with a brief phone conversation. If you agree, please let me know what times I can find you and where in the next few days, and I will be happy to call you. Or, you can call me when you come in this morning about 9 a.m. your time, 4 p.m. my time. I will be at the office (805) 893-4900.

Sincerely,

THEO

66476/024

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: ) PATENT  
)  
Jong Woon PARK et al. )  
)  
Serial No. )  
)  
Filed: )

Ex-Vessel Core Melt Retention Device  
Preventing Molten Core Concrete Interaction

\* \* \* \* \*

DECLARATION OF T. G. THEOFANOUS  
UNDER 37 C.F.R. 1.68

I, T. G. Theofanous, hereby declare and state that:

I am a joint inventor of the invention set forth in the above-identified application;

I am a citizen of the United States of America, residing at 857 Sea Ranch Drive,  
Santa Barbara, California 93109;

The invention as set forth in the above-identified application was made by me as  
a co-inventor in the United States;

I submitted a draft of my report entitled "An Ex-Vessel Coolability Concept For  
KNGR" to Dr. Jong Woon Park of KEPRI in South Korea by letter dated March 1, 1999  
*indicating the patentable value of it.*  
(copy enclosed) ~~to determine if there was any interest in supporting such work.~~

Dr. Park wrote back to me on March 2, 1999 (copy enclosed) and on March 13, 1999  
(copy enclosed) Dr. Park e-mailed me several questions on the paper. On July 28,

*20*  
*11/24/00*

*20*  
*11/24/00*

1999 (copy enclosed) I received an e-mail from Dr. Park in response to mine of July 13. On February 17, 2000 I received an e-mail from Dr. Park (copy enclosed) informing me for the first time that a Korean patent application had been filed on my invention. By letter of February 17, 2000 (copy enclosed) I contacted a U.S. attorney to determine what my options were. On July 13, 2000 I wrote to Dr. Park (copy enclosed) to tell him about the "issues" raised by my U.S. attorney. He responded immediately, telling me that he understood, but that "things have gone too far." He advised me to wait and let the "Korean Patent Office submit the EVR patent application to U.S." I responded that he told me to make preparations with the U.S. patent, and that I was surprised with his position. No response was received until July 26, 2000 (copy enclosed) apologizing for being late, but not really responding to my e-mail of July 13, 2000. I received an e-mail on July 31, 2000 (copy enclosed) attaching the recently revised and corrected patent document on EVR received from his patent agency. On August 29, 2000 (copy enclosed) I got a fax from Dr. Park asking me to execute the Combined Declaration and Power of Attorney. On August 30, 2000 I sent an e-mail (copy enclosed) to Mr. Choi, a member of management of KEPRI. On October 4, 2000, I telephoned Lawrence R. Radanovic, Esq. of Dykema Gossett PLLC, and we discussed several background matters. I indicated that my U.S. attorney had advised that a retroactive foreign filing license must be obtained before filing of the application in the United States. On October 25, 2000 I sent Mr. Radanovic materials from my file relevant to this project;

After my discovery that the application had been first filed in Korea, I diligently sought the filing of an application corresponding thereto in the United States as well as a retroactive license for foreign filing, also as documented by the chronology of events set forth above;

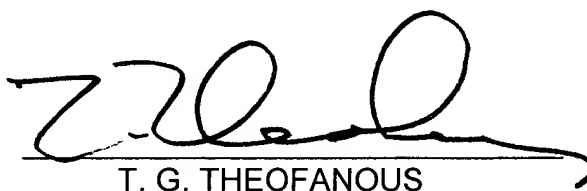
The Korean patent application was first filed through error, and without deceptive intent and without the required license under section 5.11 having first been obtained;

To the best of my knowledge and belief the invention set forth in the subject Korean application does not disclose an invention within the scope of 35 U.S.C. 181;

To the best of my knowledge and belief the subject invention was not under a secrecy order at the time it was filed abroad, and that it is not currently under a secrecy order;

To the best of my knowledge or belief the subject invention was not made or conceived in the course of, or in connection with, or under the terms of any contract, subcontract, or arrangement entered into with or for the benefit of United States Atomic Energy Commission or its successors; Energy Research and Development Administration or the Department of Energy.

The undersigned declares further that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S.C. 1001, and that such willful false statements may jeopardize the validity of the application or any resulting registration, and that all statements made of his own knowledge are true and all statements made herein on information and belief are believed to be true.

  
T. G. THEOFANOUS

Date: 11/24/00

002222T 20021124



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